

REMARKS

This reply is filed in response to the office action mailed December 24, 2008. Claims 22-26 are currently pending.

Rejection under 35 U.S.C. § 112, 1st paragraph

Claims 22-26 are rejected as failing to comply with the enablement requirement.

By way of background, due to clerical errors, the descriptions on preparation of Intermediate 6 and Example 8 in the present application omit an organo-metallic catalyst and a carboxylic acid, respectively. In the last office action issued on October 9, 2007, the Examiner rejected claims 22-26 as failing to comply with the written description and enablement requirements on the ground that the just-mentioned description omit essential elements. In the response filed on December 20, 2007, Applicants argued that one skilled in the art could readily identify the missing elements in the descriptions on the preparation of Intermediate 6 and Example 8. In the current office action, the Examiner states that "previously presented rejection of claims 22-26 under 35 U.S.C. 112, first paragraph as failing to comply with the written description requirement is recast as scope of enablement rejection." See the paragraph bridging pages 2 and 3. In other words, the Examiner no longer disputes that claims 22-26 comply with the written description requirement, but only asserts that they do not comply with the enablement requirement.

In support of his enablement rejection, the Examiner cites the eight factors set forth in *In re Wands* 8 USPQ2d 1400 (CAFC, 1988), but relies only on three factors: (1) amount of direction provided by the inventor, (2) the existence of working examples, and (3) the and level of predictability in the art. Applicants traverse these three factors below. Claim 22 is the only independent claim and is discussed first.

(1) and (2) Amount of direction provided by the inventor and the existence of working examples

The Examiner asserts that "[i]t is not seen where in the specification enabling disclosure is found for making compounds wherein Y is SO₃H, CH₂COR₃, CH₂SO₃H, OCH₂CO₂R₃ or OCH₂SO₃H or Z1, Z2 or Z3 is independently, alkyl (optionally substituted with halogen), C₁₋₆

alkoxy (optionally substituted with halogen), $S(O)_p(C_{1-6} \text{ alkyl})$, $S(O)_4CF_3$ or $S(O)_2NR_6R_7$." See the office action, page 4, first paragraph.

The Examiner clearly errs. Claim 22, as pending, has a rather narrow claim scope. Indeed, variables E, Q, W, and X recited in claim 22 are narrowed to a specific group and variables Y, Z¹, Z², Z³, R¹, and R³ are narrowed to a limited number of groups. As such, the groups quoted by the Examiner either are not recited in claim 22 or are adequately enabled by the specification. Applicants provide detailed analyses for each group quoted by the Examiner in the table below.

Variable recited in claim 22	Group quoted by the Examiner	Analysis
Y	SO ₃ H, CH ₂ SO ₃ H, OCH ₂ CO ₂ R ₃ , and OCH ₂ SO ₃ H	These groups are <u>not</u> recited in claim 22.
	CH ₂ COR ₃	The specification provides general guidance on how to make compounds containing this group at page 7, line 23 to page 8, line 13, and provide working examples in at least Examples 6 and 12. Note that the descriptions of Examples 6 and 12 are complete and are not objected to by the Examiner as missing essential elements.
Z ¹ , Z ² , and Z ³	alkyl (optionally substituted with halogen)	Claim 22 recites C ₁₋₄ alkyl, <u>not</u> alkyl (optionally substituted with halogen). C ₁₋₄ alkyl recited in claim 22 does not include any substituent. The specification provides at least one working example, i.e., Example 17, describing how to make a compound in which Z ¹ , Z ² , or Z ³ is C ₁₋₄ alkyl. Note that the description of Example 17 is complete and is not objected to by the Examiner as missing essential elements.
	C ₁₋₆ alkoxy (optionally substituted with halogen)	Claim 22 recites C ₁₋₄ alkoxy and OCF ₃ , <u>not</u> C ₁₋₆ alkoxy (optionally substituted with halogen). The specification provides at least one working example, i.e., Example 15, describing how to make a compound in which Z ¹ , Z ² , or Z ³ is C ₁₋₄ alkyl (i.e., methoxy). Note that the description of Example 15 is complete in so far as it contains characterizing data for

		the final compound. Thus, one skilled in the art would readily understand how to make compounds in which Z ¹ , Z ² , or Z ³ is OCF ₃ in view of Example 15. OCF ₃ is a close analog of methoxy exemplified in Example 15.
	S(O) _p (C ₁₋₆ alkyl)	Claim 22 recites S(O) ₂ (C ₁₋₄ alkyl), <u>not</u> S(O) _p (C ₁₋₆ alkyl). The specification provides at least one working example, i.e., Example 19, describing how to make a compound in which Z ¹ , Z ² , or Z ³ is S(O) ₂ (C ₁₋₄ alkyl). Note that the description of Example 19 is complete and is not objected to by the Examiner as missing essential elements.
	S(O) _q CF ₃	This group is <u>not</u> recited in claim 22.
	S(O) ₂ NR ₆ R ₇	Claim 22 recites S(O) ₂ NH ₂ , <u>not</u> S(O) ₂ NR ₆ R ₇ . S(O) ₂ NH ₂ is a close analog of S(O) ₂ (C ₁₋₄ alkyl) recited in claim 22. One skilled in the art would readily understand how to make compounds in which Z ¹ , Z ² , or Z ³ is S(O) ₂ NH ₂ in view of Example 19.

For the reasons set for the in the table above, the specification provides adequate enablement support to the compounds of claim 22.

The Examiner also asserts that

"[t]he direction, guidance, and working example found in the specification for making such compounds is misleading at best, because there is no prior art citations or teaching in the specification for making benzoic acid (or its derivatives) needed for the amidation reaction to make compounds of formula (I). The working examples are misleading because the description in the working examples omits essential elements." See the office action, page 4, 2nd paragraph.

The Examiner errs again. Given the Examiner's reference to "making benzoic acid (or its derivatives)," it appears that the Examiner's above assertion is directed to the example describing preparation of Intermediate 6 on page 24. This example describes reacting a brominated benzene derivative with methanol and carbon monoxide via an alkoxycarbonylation reaction. Applicants already provide two articles, i.e., Moser et al., *J. Am. Chem. Soc.* 1988, 110, 2816-2820 ("Moser") and Mizhushima et al., *Green Chemistry*, 2001, 3, 76-79 ("Mizhushima"), with the response filed on December 20, 2007. Moser describes using an alkoxycarbonylation reaction to prepare methyl benzoate (i.e., a benzoic acid derivative) in the presence of an organo-metallic

catalyst. Mizushima describes using an alkoxycarbonylation reaction to prepare a number of benzoic acid esters (i.e., also benzoic acid derivatives) in the presence of an organo-metallic catalyst. Thus, contrary to the Examiner's assertion, Applicants already cited adequate literature showing that methods of making benzoic acid derivatives are well known in the art. Further, as discussed in the response filed on December 20, 2007, one skilled in the art could readily identify the missing element (i.e., an organo-metallic catalyst) in this working example. Thus, contrary to the Examiner's assertion, this working example is not misleading.

Finally, the Examiner asserts that

"[i]n support of these assertions, applicant draws Examiner's attention to page 21, lines 4-5 and page 27, lines 6-7, page 21, lines 8-11 and page 27, lines 10-13. ... page 21, lines 4-5 shown below ... are not relevant to the issue at hand. Page 27, lines 6-7 The inadequacy of what is found here is one of the bases of the rejection. The mass spectral numbers (M+H) are available for any structure without having possession of the compound. [P]age 21, lines 8-11 ... are not relevant to the issues at hand. [P]age 27, lines 10-13. See above. These lines are not relevant to the issues at hand." See the office action, page 7, line 6 to page 9, line 18.

Applicants would like to point out that the citations "page 21, lines 4-5" and "page 21, lines 8-11" mentioned in Applicants' response filed on December 20, 2007 contain typographic errors and should read "page 24, lines 4-5" and "page 24, lines 4-5," respectively. In any event, all of the above citations mentioned in Applicants' December 20, 2007 response were used to address the written description rejection asserted in the office action issued on October 9, 2007, not the enablement rejection asserted in the present office action.

However, Applicants would like to comment on the Examiner assertion that "[t]he inadequacy of what is found here [in Example 8] is one of the bases of the rejection. The mass spectral numbers (M+H) are available for any structure without having possession of the compound." The Examiner appears to assert that Applicants do not have possession of the compound prepared in Example 8. Applicants would like to bring to the Examiner's attention that Example 15 describes using the compound prepared in Example 8 as a starting material to form an acid as a final compound. The final compound prepared in Example 15 was isolated and fully characterized as demonstrated by its MS and NMR data. In other words, the fact that Applicants have possession of the compound prepared in Example 8 is abundantly clear.

Even assuming that Example 8 is irredeemably deficient (which Applicants do not concede), it would simply mean that Examples 8-11 cannot be taken into account in providing enabling support for claim 22. However, the specification already provides general guidance on how to make the compounds of claim 22. *See* page 7, line 22 to page 10, line 16. Further, the specification provides as many as 11 synthetic examples, i.e., Examples 1-7, 12, 16, 17, and 19, in addition to Examples 8-11. There is nothing wrong with these 11 synthetic examples. They fully describe how to make certain compounds of claim 22 and are not objected by the Examiner as being deficient. Thus, in view of the general guidance and specific teachings in the specification, one skilled in the art would readily know how to make a compound covered by claim 22 without undue experimentation.

Of note, Applicants would like to point out that it is not necessary for Applicants to synthesize and disclose each and every compound of claim 22. The law does not impose such a formidable burden on inventors seeking patent protection. "Appellants (here, Applicants) are not required to disclose every species encompassed by their claims even in an unpredictable art" (emphases added). *In re Angstadt*, 190 USPQ 214, 218 (CCPA 1976). Such a holding is only reasonable, since it is very difficult, if not impossible, to produce and disclose all species covered by a claim in the chemical and biotechnology fields.

(3) The level of predictability in the art

The Examiner asserts that "The predictability and state of the art of organic chemistry is such that, consulting prior art would not adequately compensate for the lack of written description requirement. The unpredictability in organic synthesis is high in spite of the high skill level in the area." *See* the office action, page 5, lines 2-5. The Examiner also cites a passage in a book authored by Dorwald F. A. and entitled "Side Reactions in Organic Synthesis," which purports to show that organic synthesis is unpredictable and involves a large amount of trial and error.

It appears that the Examiner again is confused the written description requirement with the enablement requirement. In any event, as discussed in Applicants' December 20, 2007 response, the compounds of claim 22 can be prepared by a simple amidation reaction between an

amine and an acid. *Also see, e.g.*, the specification, pages 7-9. Such a reaction is well known in the art. Further, the Examiner is reminded that

“[a] considerable amount of experimentation is permissible, if it is merely routine, or if the specification in question provides a reasonable amount of guidance with respect to the direction in which the experimentation should proceed (emphases added).” *In re Wands*, 8 USPQ2d 1400, 1404 (CAFC 1988), citing *In re Jackson*, 217 USPQ 804, 807 (CCPA 1969).

Because the techniques needed to synthesize a compound of claim 22 were well known at the time the invention was made, they are mere routine procedures within the skill of an ordinary person in this field. Further, the specification has provided adequate guidance including methods of making a compound of claim 22 (see pages 7-10) and at least 11 working synthetic examples (see Examples 1-7, 12, 16, 17, and 19 at pages 24-31). Thus, the amount of experimentation to make the compounds of claim 22 is permissible even if it is large.

For the reasons set forth above, claim 22 is adequately enabled by the specification. Since claims 23-26 depend from claim 22, they are also adequately enabled by the specification.

Conclusion

Applicants submit that all pending claims are now in condition for allowance, an action of which is requested.

Any circumstance in which Applicants have: (a) addressed certain comments of the Examiner does not mean that Applicants concede other comments of the Examiner; or (b) made arguments for the patentability of some claims does not mean that there are not other good reasons for the patentability of those claims and other claims.

Applicant : Christopher Luckhurst et al.
Serial No. : 10/549,868
Filed : August 17, 2006
Page : 10 of 10

Attorney's Docket No.: 06275-0468US1 / 100949-1P US

Please apply any charges to deposit account 06-1050, referencing Attorney's Docket No.
06275-0468US1.

Respectfully submitted,

Date: February 27, 2009

/Tony Zhang/

Tony Zhang, Ph.D.
Reg. No. L0256

Fish & Richardson P.C.
Citigroup Center - 52nd Floor
153 East 53rd Street
New York, New York 10022-4611
Telephone: (212) 765-5070
Facsimile: (877) 769-7945